

Kennecott
Utah Copper
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JUL 16 1992

DIVISION OF
OIL GAS & MINING

Kennecott

Mr Mike Schwinn
Army Corps of Engineers
1403 South 600 West
Bountiful, UT 84010

July 13, 1992

Re: Kennecott Wetland Issues Meeting, July 7

Dear Mike,

This letter summarizes Kennecott's understanding of the July 7 meeting in regard to wetland issues at Kennecott Utah Copper (KUC).

The Corps is in receipt of our letter of July 7 in which Kennecott agreed with the Corps determination of 37.5 acres of wetland encroachments that occurred subsequent to 1977. Kennecott did not concur with the Corps delineation of Blocks 10 East and West as jurisdictional wetlands. We requested the opportunity to provide additional information to support our position and the Corps agreed to consider any additional data Kennecott could supply in this regard. Kennecott will supply additional data in support of our position by mid-August.

In preparing a permit-after-the-fact and mitigation plan for potential wetland encroachments, the difficulty in identifying the types of communities that may have been affected was discussed. In evaluating the wetland types potentially affected, Kennecott agreed to review historical aerial photos of the area, and photos taken at the approximate time of encroachment. Two types of mitigation were discussed; the first being in-kind replacement and the second, agency preferred wetland community replacement. It was agreed that the mitigation requirement would be for wetland communities

actually affected by the encroachments, if this could be determined. If this could not be ascertained the agencies would prefer that a wetland mosaic be created through the mitigation plan. Kennecott believes these goals may potentially be in conflict and requests the Corps clarification of the ultimate mitigation objectives.

In determining the type and amount of mitigation required, the Corps indicated that the methodology utilized should be measurable and repeatable. While wetlands serve multi-functions and have differing values, it is Kennecott's understanding that the agencies are most interested in mitigating for wildlife. We discussed the use of the Habitat Evaluation Procedure (HEP) and other potential methods (e.g. vegetation) for assessing wetland functions and values for wildlife. Following the assessment of the potential communities affected, Kennecott, in concert with the agencies, will propose a method for assessing the function and value of the affected wetlands and for establishment of the type and amount of mitigation required.

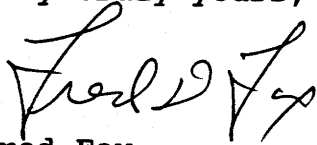
During the meeting a preliminary approach and flowchart for development of the 404 application and wetland mitigation plan was developed (Figure 1). This figure provides a proposed schedule for completion of the various tasks for your review and information.

The establishment of a wetland "bank" was also discussed. The Corps is willing to pursue a "pilot" wetland bank with Kennecott. The concerns in establishing the protocol for debiting and crediting the bank and the importance of a well developed Memorandum of Understanding (MOU) were reviewed. Kennecott will prepare a draft MOU for review with the regulatory agencies and has targeted late August for its submittal.

Finally, our conceptual plans for the Solar Evaporation Salt Impoundment (formerly Morton Salt property) were presented along with the preliminary results of the historical wetland characterization of this site. It is Kennecott's intent to operate a limited salt operation and reclaim areas not needed for operation by sequentially draining the site. We understand the Department of Oil Gas and Mining (DOGM) and the Corps to be in agreement with this conceptual plan. We will be submitting a Notice of Intent to DOGM, with a copy to the Corps, which will include a historical wetland assessment of the site in the near future.

We appreciate the Corps' and other agencies' cooperation in development of a Section 404 permit-after-the-fact and willingness to consider the development of a wetland bank.

Very truly yours,

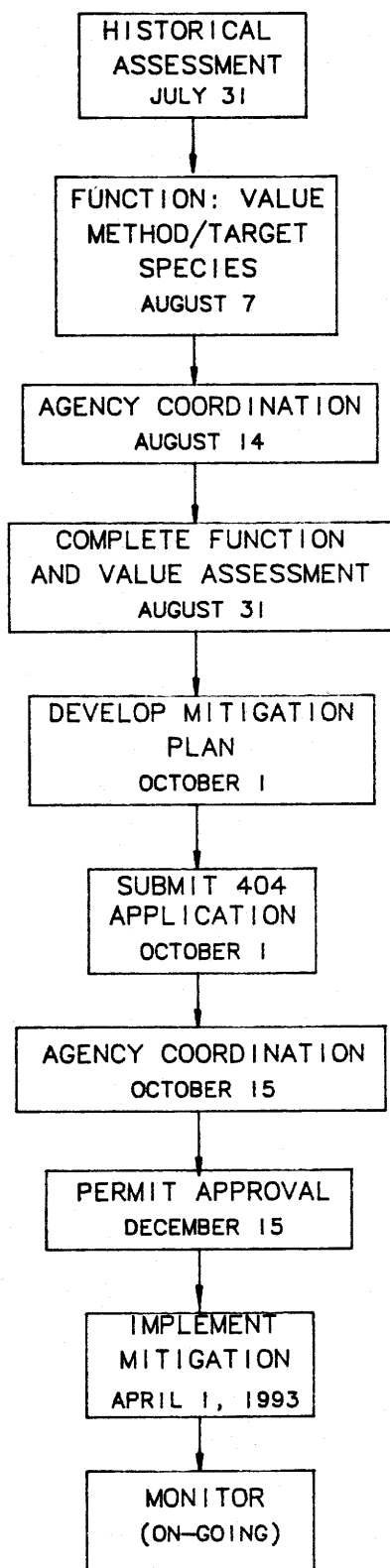
A handwritten signature in cursive script, appearing to read "Fred Fox", written in dark ink.

Fred Fox

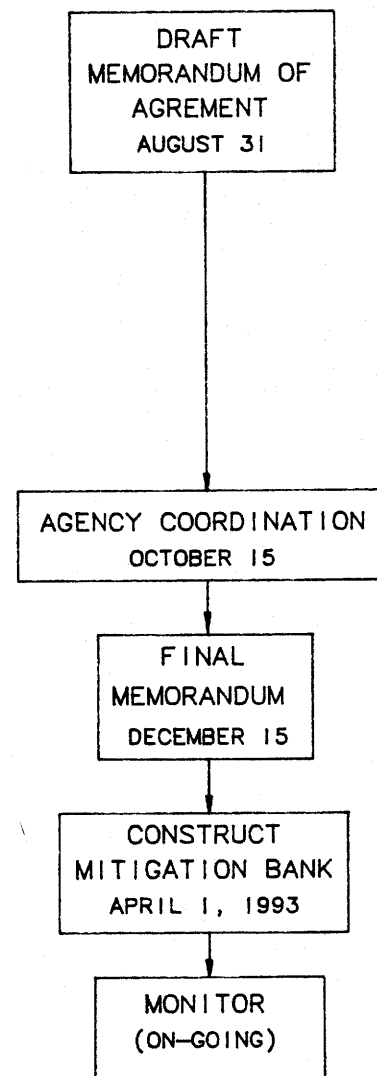
cc. B Dunne
L Russell
D Deines
S Mills (SWCA)
C Quinn (DWR)
L Gingery (DP&R)
B Mairley (EPA-Denver)
W Hedberg (DOGM)
B Freeman (USF&WS)

FIGURE 1. SECTION 404 PERMIT AFTER THE FACT AND
WETLAND MITIGATION BANKING FLOW CHARTS.

SECTION 404



WETLAND BANKING



DOGM
MINERALS PROGRAM
FILE COPY

NY/035/002

- Commitments Exchanged
- Journal Entry
- Thoughts & Ideas
- Agendas (telephone, meetings)
- Conversations

MONTH July YEAR 92

DAILY RECORD OF EVENTS

7
DATE

Kennecott/ACOE Mtg. on "Wetlands"
(10:00 - 12:30)

- discussed wetland areas that have been identified by KVC consultants and have been impacted by KVC operations. Some disagreement between Corp + KVC on affected areas.
- mitigation measures? (for affected areas)
- reference area (state Parks, near marina), relatively small, but possibly useful?
- basis of replacement/mitigation ^{areas} back to 1977 and subsequent KVC related impacts since?
- USFWS often looks at a replacement/mitigation ratio of 2:1 to 3:1, because "no guarantee" the reconstructed areas will function as intended.
- seek "historical" information (pre-1977 77-81 or so) and compare/contrast data with what's there today?
- National Wetlands Inventory, ^{mapping} prepared 1986 by USFWS based on 1981 water year ^{normal} (average?)
- Discussed "Wetland Banking" as a form of advance mitigation from which to draw from for earning "credits" for future expansion/development.
- * Some "reservation" expressed by USFWS and DNR on this principal but open to consider same. ACOE is in support
- * -> Motion NOT anticipate submittal to DNR by end of July - 1st week August.

Bob Dunn
Luke Russell } KUC
Don Deines }

Greg Mills (SWCA Consultant)
for KUC
Bob Freeman (USFWS)
Lyle Gingory (State Parks)

KENNECOTT/CORPS OF ENGINEERS

JULY 7, 1992

AGENDA

Ruthanne Quinn } DWR
Mike Schuring } ACOE

I. Introductions

II. Encroachment Issues

1. Chronology

2. Potential Wetland Encroachments

COE : 60.2 acres of jurisdictional wetlands affected.

KUC : 37.5 acres of jurisdictional wetlands affected. (to be mitigated)

3. Permitting/Mitigation

A. Mitigation Approach (KUC)

Pond A	0.2 ac.	KUC does not concur.
Pond D	22.5 ac	KUC does not concur.
Slag Pile	35.5 ac	Compensate
Jap. Spring	2.0 ac	Rectify ??

B. Compensation Goals and Objectives

1. KUC/Agency

Review KUC objectives included in May 27 letter

Obtain Agency Feedback

2. Function and Value Assessment

3. Function and Value "Team"

4. Potential Mitigation Sites

5. Mitigation Plan Outline Review

C. Regulatory Process - COE

III. Wetland Banking

1. KUC Goals and Objectives

2. Agency Goals and Objectives

3. Memorandum of Agreement/ Process to establish a bank.

IV. Morton Property - Notice of Intent

1. Historical Wetland Assessment

2. Conceptual Operating Plan

**KUC WETLAND INVENTORY
CHRONOLOGY**

February 1990 : COE/EPA Memorandum of Understanding
* No Overall Loss of Wetlands

April 1990 : Meeting and Correspondence, KUC/COE
* KUC Commitment to review its property for Section 404 compliance.
* Areas not covered by an individual or Nationwide permit would be permitted with COE.

June 1990 : Meeting, KUC/COE
* KUC updates COE on property inventory status.
* KUC in final process of selecting a consultant to conduct property inventory.

July 26, 1990 : Meeting, KUC/COE/BioWest
* Discuss approach for identifying jurisdictional vs. operational wetland areas in property inventory.

August 27, 1991 : Tour north end facilities, COE/KUC

Nov. 21, 1991 : Tour, COE/KUC
* Tour includes COE-Sacramento

Jan. 6, 1992 : Bio/West report Jurisdictional Wetlands on Selected Kennecott Utah Copper Properties submitted to COE

May 27, 1992 : Letter, KUC to COE.
* Preliminary mitigation concepts for potential inadvertent encroachments into jurisdictional wetlands presented.

May 29, 1992 : Meeting, COE/KUC.
* Review Bio/West 1/6/92 report and KUC letter of May 27.

June 11, 1992 : COE responds to January 6 Bio/West report.

July 7, 1992 : Meeting. KUC-COE and US Fish and Wildlife, Utah Dept. of Parks and Recreation, Utah Division of Wildlife Resources, Environmental Protection Agency, to discuss:

1) "After-the-Fact" permitting and wetland mitigation for inadvertent encroachments,

2) Establishment of a wetland bank for potential impacts to wetlands from future KUC modernization activities.

ACOE MEETINGS

JUNE 7, 1992

NAME / TITLE

D. WAYNE HEDBERG, PERMIT SUPER.
 DON DEINKS / SR. ENV. ENG.
 SCOTT HILL
 LUKE RUSSELL / SP. ENV. ENGR.
 D. DUNN
 Lyle Gingery, Park Manager
 Bob Freeman
 Michael Schuinn
 Catherine Quinn, Habitat Coordinator

AGENCY / COMPANY

DOGM (538-5340)
 KENECOTT 569-6698
 SWCA
 K.U.C. 569-6535
 KENNEDYSCOTT 569-6675
 Great Salt Lake State Park
 U.S. Fish & Wildlife Service (524-5630)
 U.S. Army Corps of Eng. 295-8380
 Div. of Wildlife Res. 538-4861



GREGORY SCOTT MILLS

Office Address

SWCA, INC. Environmental Consultants
1602 East Ft. Lowell Road
Tucson, Arizona 85719
(602) 325-9194

Home Address

1701 East Copper Street
Tucson, Arizona 85719
(602) 325-0426

Dr. Mills is a professional ecologist with 16 years of experience in the southwest. His specialties are the distribution, status, and ecology of fishes, amphibians, reptiles, birds, and mammals. He has also worked extensively with plant community mapping, assessment, riparian ecology, and the relationship between vegetation volume and the distribution and abundance of birds. He has had extensive experience with threatened and endangered plants and animals, including determination of their status and their management.

Dr. Mills has worked on numerous projects as project manager and scientist. Major projects include collection and analysis of data on terrestrial wildlife for the Upper Gila Water Supply project and principal authorship of the concurrent fisheries report; development of Habitat Suitability Index models for selected vertebrates; vertebrate surveys and development of the planting design for the Mittry Lake revegetation area; terrestrial ecology of bankline modifications along the Lower Colorado River; transplantation of Tumamoca macdougallii, a federally-endangered species surveys and status assessments for numerous special-interest species, including Spotted Owl, Desert Tortoise, and many plants; and impact and mitigation analyses for private sector development projects, including Section 404 of the Clean Water Act permits.

Education

- 1979 Ph.D. University of Arizona. Ecology. Dissertation Title: Foraging strategies of American Kestrels and Loggerhead Shrikes in relation to an optimal foraging model.
- 1972 M.S. Ohio State University. Zoology. Thesis Title: A winter population study of the American Kestrel in Central Ohio.
- 1970 B.S. Ohio State University. Biology

Professional Experience - Employment

- 1985- Consulting Ecologist, Senior Project Scientist for SWCA, Inc. Principal duties include plant community mapping, wildlife inventories, analysis of impacts, and formulation of recommendations for research and mitigation for development projects in Arizona, New Mexico, Nevada, and California.
- 1983-85 Self-employed Environmental Consultant. Performed wildlife inventories, analysis of impacts, and formulation of mitigation measures for various projects in Arizona and New Mexico.
- 1979-83 Zoologist for the Arizona Natural Heritage Program, The Nature Conservancy. Responsible for the collection and analysis of distributional, population status and life history information of selected vertebrates in Arizona. Helped develop a revised list of state threatened and endangered wildlife; computerized records of vertebrate occurrences; organized and conducted field searches for selected species; analyzed impacts of projects on vertebrate populations; made recommendations for protection measures and management of rare vertebrates. Field work done on all vertebrate groups.

Professional Experience (continued)

- 1982 Environmental Consultant. Supervising Professional for the inventory of birds, mammals, reptiles and amphibians at selected springs on the China Lake Naval Weapons Center, Ridgecrest, California for S. W. Carothers Associates (U.S. Navy Contract).
- 1979-81 Environmental Consultant. For the inventory of birds of the George Whittell Wildlife Preserve, Aravaipa Canyon, Arizona. A three-year study of the birds of a 20,000 acre preserve which included analysis and management recommendations.
- 1977-79 Assistant Curator of Birds. University of Arizona.
- 1975-76 Research Assistant. University of Arizona. Bird surveys and analysis of impacts for an environmental impact assessment in the Santa Rita Mountains, Pima County, Arizona.
- 1974-76 Research Associate. University of Arizona. For Dr. H. Ronald Pulliam, NSF grants GB 41532 and DEB76-00341. Ecology of wintering grassland sparrows in southern Arizona and northern Mexico.

Teaching Experience

Graduate Teaching Assistant or Associate for:

General Biology	Vertebrate Natural History
General Botany	Ornithology
General Zoology	Mammalogy

Publications

Mills, G.S.

- 1975 A winter population study of the American Kestrel in central Ohio. Wilson Bull. 87:241-247.

Mills, G.S.

- 1976 Habitat separation and sex ratios of the American Kestrel. Auk 93:740-748.

Silliman, J.R., G.S. Mills and S.M. Alden

- 1977 Effect of flock size on foraging activity in wintering Sanderlings. Wilson Bull. 89:434-438.

Mills, G.S.

- 1977 New locations for the Five-striped Sparrow in the United States. Western Birds 8:121-130.

Pulliam, H.R. and G.S. Mills

- 1978 The use of space by wintering sparrows. Ecology 58:1393-1399.

Mills, G.S., J.R. Silliman, K.D. Groschupf and S.M. Speich.

- 1980 Life history of the Five-striped Sparrow. Living Bird 18:95-110.

Publications (continued)

Groschupf, K.D. and G.S. Mills

1982 Singing behavior of the Five-striped Sparrow. Condor 84:226-236.

Mills, G.S., J.B. Dunning Jr., and J.M. Bates

1989 Effects of urbanization on breeding bird community structure in Southwestern desert habitats. Condor 91:416-428.

Carothers, S.W., G.S. Mills, and R.R. Johnson

1990 The creation and restoration of riparian habitat in Southwestern arid and semi-arid regions. In: Kusler, J.A. and M.E. Kentula (eds.). Wetland creation and restoration: the status of the science. U.S. Environmental Protection Agency.

Notes

Petrovic, C.A. and G.S. Mills

1972 Sparrow Hawk eats European Corn Borer. Wilson Bull. 84:491.

Mills, G.S.

1974 American Kestrel preys on least weasel. Wilson Bull. 86:74.

Alden, S.M. and G.S. Mills

1976 White-throated Swifts following farm machinery. Wilson Bull. 88:675.

Mills, G.S.

1977 American Kestrel rejects captured spadefoot toad. Wilson Bull. 89:623.

Groschupf, K.D. and G.S. Mills

1978 Intersong interval and song pattern variability of the Five-striped Sparrow. Auk 95:758-760.

Contracts, Grants and Consultant Services

- 1989 Survey of Spotted Owls in Gila National Forest, New Mexico for the U.S. Forest Service. Project manager for the survey of more than 250 square miles.
- 1989 Evaluation of raptor collisions with Wind Turbine Generators, Los Angeles County, California. Sierra Delta Corporation for Zond Windsystems.
- 1989 Survey of Desert Tortoise populations, Clark County, Nevada. U.S. Bureau of Land Management. Project manager for desert tortoise surveys at three square-mile study plots.
- 1988-89 Survey of Peregrine Falcons in Grand Canyon National Park. National Park Service. Assisted in creation of study design, data interpretation, and field surveys.

Contracts, Grants and Consultant Services (continued)

- 1989 Planting designs for wildlife along Pima County's Linear Parks. Tucson, Arizona. Presented seminar on relationships between vegetation and wildlife to contractors for mitigation for bankline stabilization.
- 1988-89 Evaluation of biological impacts and preparation of mitigation plan for a Section 404 of the Clean Water Act Permit, Pima County, Arizona. Cella Barr Associates for Caterpillar, Inc.
- 1988 Section 404 of the Clean Water Act Permit for Gravel Resources, Inc., Maricopa County, Arizona.
- 1988 Biological Survey of the Sage Site, Coconino County, Arizona. Union Pacific Resources Company. Prepared vegetation map and conducted plant, bird, and small mammal surveys on more than 12 square miles on the Coconino Plateau. Included specific surveys for Chrysothamnus molestus and Ferruginous Hawk.
- 1987-88 Tucson urban bird study. The Estes Co. Designed and conducted study testing the relationship between amount (volume) and type of vegetation on breeding bird density in 34 urban and native sites.
- 1987-88 Ecological analysis of the Arizona Superconducting Super Collider Sites. State of Arizona. Evaluated vegetation and wildlife and prepared environmental volume for the DEIS for the Sierrita Site. Reviewed information and environmental volume for the Maricopa Site.
- 1987 Biological evaluation of the Gray Ranch, Hidalgo County, New Mexico. Phelps Dodge/Estes Joint Venture.
- 1986-88 Terrestrial ecology of Lower Colorado River bankline modifications. U.S. Bureau of Reclamation. Project manager for three-year study that included vegetation mapping and measurement, revegetation experiments, literature synthesis, and wildlife use evaluations along modified (riprapped) banklines.
- 1986 Transplantation of Tumamoc Globe-berry plants from the Central Arizona Project Right-of-Way, Pima County, Arizona. U.S. Bureau of Reclamation.
- 1986 Environmental Assessment, Imperial County, California. Aquafuture, Inc. for U.S. Bureau of Land Management. Included survey for Flat-tailed Horned Lizard.
- 1986 Impact analysis of proposed Ski Resort expansion, Santa Catalina Mountains, Pima County, Arizona. Survey of plant communities and breeding birds.
- 1985-86 Biological site analysis of the Senesac (Acacia Hills) property, Pima County Arizona. The Estes Co. for Pima County. Quantified and mapped vegetation communities and censused birds.
- 1985-87 Biological and visual quality assessments of the proposed San Rafael 230 KV transmission line, Cochise County, Arizona. Arizona Electric Power Cooperative.

Contracts, Grants and Consultant Services (continued)

- 1985-89 Environmental site analyses, Pima, Pinal and Santa Cruz Counties, Arizona. Conducted site analyses for more than 25 properties. Analyses included vegetation community mapping, bird censuses, quantitative measurements of plant communities, evaluation for special-interest species and searches for the endangered Tumamoc Globe-berry.
- 1985-88 Rincon Valley Area Plan habitat evaluation. The Estes Co. for Pima County, Arizona. Evaluated habitat and made recommendations for land-use plan covering 35,000 acres. Habitat evaluation included plant community mapping, quantification of plant communities, bird censuses, and surveys for special-interest species.
- 1984 Survey of Masked Bobwhite and other birds on the Buenos Aires Ranch, Pima County, Arizona. Arizona Game and Fish Department.
- 1984-85 Mittry Lake revegetation Master Plan. James M. Montgomery Engineers for the U.S. Bureau of Reclamation. Developed planting design for revegetation of 80 acres, censused birds and small mammals, and evaluated mitigation values.
- 1984-85 Biological inventory and impact analysis of alternate water treatment sites, Tucson, Arizona. James Montgomery Engineers for the City of Tucson.
- 1983-85 Wildlife and fishery studies, Upper Gila Water Supply Project. U.S. Bureau of Reclamation. Supervised and conducted inventory of mammals, birds, reptiles and amphibians at five potential reservoir sites in New Mexico and Arizona. Performed analysis of impacts and formulated recommendations for mitigation. Field assistant and principal author of concurrent fisheries study.
- 1983-84 Habitat Suitability Index models. U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service. Developed models for Common Black-Hawk, Yellow-breasted Chat, Bewick's Wren, Ash-throated Flycatcher, and Clark's Spiny Lizard.
- 1982, 1987 Status of the Arizona Grasshopper Sparrow. U.S. Fish and Wildlife Service. Principal investigator for 1982 survey of breeding populations in Arizona and Mexico, assisted in 1987.
- 1982 Status of the Arizona Thirteen-lined Ground Squirrel. U.S. Fish and Wildlife Service. Principal investigator for survey of subspecies monticola in the White Mountains of Arizona.
- 1982 Survey of the Masked Bobwhite in Sonora, Mexico. U.S. Fish and Wildlife Service. Supervised call-count census and vegetation quantification.
- 1982 Analysis of the taxonomic and endangerment status of 30 selected subspecies of mammals in Arizona, New Mexico and Texas. U.S. Fish and Wildlife Service. Principal investigator for study to identify subspecies for consideration for possible listing as threatened or endangered.



Contracts, Grants and Consultant Services (continued)

- 1981 Fisheries inventory of the Muleshoe Ranch, Cochise and Pima counties, Arizona. The Nature Conservancy. Supervised and conducted inventory of native fish in four streams.
- 1981 Survey of the Meadow Jumping Mouse in the White Mountains of Arizona.
- 1981 Survey of the Buff-collared Nightjar in southeast Arizona. Organized and participated in searches for new locations for the species. Two new locations were discovered.
- 1974-79 Study of the status and life history of the Five-striped Sparrow in Arizona. Tucson Audubon Society and National Audubon Society.

Volunteer and Community Activities

- 1978-89 Tucson Audubon Society. Member of Board of Directors, Chairman of the Research Grants Committee, member of Education Committee, field trip leader.
- 1979-89 Arizona Bird Committee. Review of records of rare and unusual occurrences of birds in Arizona.
- 1975-89 U. S. Fish and Wildlife Service Breeding Bird Survey. Annual census: Pena Blanca Route 1975-1989; Lukeville Route 1975-1980.
- 1985-88 Consultant for Buenos Aires National Wildlife Refuge Master Planning Committee.
- 1988 Arizona Game and Fish Fishery Survey. Sycamore Canyon, Santa Cruz County, Arizona.
- 1978-89 National Audubon Society Christmas Bird Count Compiler for Atascosa Highlands, Arizona.
- 1976-86 Inventory of birds along Sonoita Creek, Santa Cruz County, Arizona. Yearly census of birds in riparian forest habitat with emphasis on special-interest species including Rose-throated Becard, Thick-billed Kingbird, Gray Hawk, and Yellow-billed Cuckoo.